REMARKS

Reconsideration of this application, as presently amended, is respectfully requested. Claims 1-23 are pending in the present application. Claims 1-23 stand rejected.

Claim Rejection – 35 U.S.C. §112, first paragraph

Claims 1, 4, 9, 13-14, 21 and 23 were rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the written description requirement. More specifically, on pages 10-11, Item 2 of the Office Action, the Examiner asserts "The Examiner is unable to find [written description] support in the disclosure as originally filed for the claim limitation 'wherein each scene includes a plurality of cut points'." The limitation "wherein each scene includes a plurality of cut points" was added by the previous amendment.

For the reasons set forth in detail below, this rejection is respectfully traversed.

The Manual of Patent Examining Procedure (MPEP), in its guidelines regarding the written description requirement of §112, first paragraph, indicates that when a disclosure describes a claimed invention in a manner that permits one skilled in the art to reasonably conclude that the inventor possessed the claimed invention the written description requirement is satisfied (see MPEP §2163).

To satisfy the written description requirement all that is required is that the applicant must convey "with *reasonable clarity* to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention now claimed." [Emphasis added] (MPEP §2163.02). An applicant shows possession by of the claimed invention by describing the

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claimed invention with all of its limitations using such descriptive means as words, structures, figures diagrams and formulas that set forth the claimed invention (MPEP §§2163(I), 2163.02).

However, the MPEP makes clear that Applicant *need not describe every claim feature exactly (or explicitly)* because there is no *in haec verba* requirement (MPEP §2163B). Further, the MPEP makes clear that an adequate description showing this possession may made through express, implicit, or even inherent disclosure (see MPEP §2163B).

Finally, it is important to be mindful of the generally inverse correlation between the level of skill and knowledge in the art and the specificity of disclosure necessary to satisfy the written description requirement. That is, information which is well known in the art need not be described in detail in the specification (MPEP §2163(II)(A)(2)) (inventions in "predictable" or "mature" arts require a lesser showing of possession than inventions in more "unpredictable" arts).

Although the specification does not use the exact language "each scene includes a plurality of cut points", the specification clearly describes the invention in such a manner that it conveys "with *reasonable clarity* to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention now claimed."

More specifically, firstly, the specification describes that a scene is composed of one or more continuous shots. For example, page 2, lines 22-23 of the specification as originally filed states "…classifying *each scene composed of one or more continuous shots* based on the content of the scene." [Emphasis added.] The claimed invention covers embodiments wherein the scene includes "a plurality of continuous shots and is thus a larger unit than a shot".

Further, for example, the drawings illustrate embodiments of the invention wherein a scene includes a plurality of continuous shots. See, for example, Figs. 7 and 16.

Secondly, the specification describes that "A shot segmentation part detects a cut from the video, and segments the video into shots based on the cut information." See page 6, lines 18-19. It is well known in the art that individual video shots are isolated or segmented by locating shot boundaries or cut points, and the term "cut" or "cut point" refers to such a shot boundary.

Thus, because (1) the specification describes embodiments wherein a scene is composed of a plurality of continuous shots, and (2) the specification further describes that a shot is segmented (or isolated) by detecting cuts (or cut points), one of ordinary skill in the art would clearly recognize that the scene includes a plurality of cut points that are shot boundaries of the plurality of shots in the scene.

In view of the foregoing, Applicants respectfully submit that one of ordinary skill in the art would reasonably conclude that Applicants' disclosure adequately described the claimed "wherein each scene includes a plurality of cut points" in a manner that satisfies the written description requirement at the time of filing.

Applicants further submit that this conclusion is buttressed by the maturity of the art and because an adequate disclosure need not be express or even implied. Thus, it is respectfully submitted that the present application adequately meets the written description requirement of §112, first paragraph, for the presently claimed invention.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §112, first paragraph, are respectfully requested.

Claim Rejections – 35 U.S.C. §103

Claims 1-3, 15 and 17-20 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** (US 7,110,454) in view of **Toklu et al.** (USP 6,549,643) and further in view of **Park et al.** (USP 6,597,738).

Claims 4-6, 9-14 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.**

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.** and in view of **Yilmaz et al.** (Shot Detection Using Principal Coordinate System).

Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.** and in view of **Yilmaz et al.**

Claims 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Toklu et al.** and in further view of **Blanchard** (USP 6,347,114).

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Nakamura et al.** (US 2001/0051516) and in view of **Pan et al.** (US 2002/0080162) in view of **Gonsalves et al.** (USP 6,392,710) and further in view of **Chakraborty et al.**

Claims 1 and 23 have been amended to clarify aspects of the present invention. More particularly, the amendment clarifies that a sequence of shots is classified into a dynamic scene or a static scene based on a shot density and a motion intensity in the present invention whereas video is classified into shots (scenes) in **Chakraborty**. That is, the shot density and motion

intensity are used not only to classify a sequence of shots into scene but also to classify the scene into a dynamic scene or a static scene in the present invention.

On the other hand, **Chakraborty** merely classifies a video into shots which are not classified into a dynamic scene or a static scene.

More particularly, **Chakraborty** uses various metrics to determine potential or possible transitions between shots (see Fig. 2A, steps 211, 212 and 213). The potential transitions between shots may be a cut point, which is an abrupt transition (see col. 1, lines 50-54), or a fade, dissolve, wipe, etc., which is a gradual transition (see col. 1, lines 55-61).

The various metrics disclosed by **Chakraborty**, i.e., the "interframe difference metric," "histogram difference metric" and "interframe variance metric", are all indices which are used to evaluate a degree of change in pixel value *between frames adjacent to each other*. For example, the *interframe difference metric* is computed as described in col. 8, lines 25-48 according to the following equation:

$$dt = \sqrt{(\frac{1}{MN} \sum_{ij} (f_{xy}(t) - f_{xy}(t-1))^2)} \,,$$

where f_{xy} is the pixel value of the *frame* at location (x, y).

These metric are not used to classify scenes, and instead are used to determine a shot transition. Further, for example, as shown in Fig. 2A of **Chakraborty** and described in connection therewith, a potential shot change (transition) location is determined based on whether a threshold level is exceeded (steps 205-210). Even assuming *arguendo* that the various metrics were used to classify a scene (which they are not), unlike the claimed invention,

Chakraborty does not make a specific classification if the thresholds are not exceeded. If the

thresholds are not exceeded there is no classification.

Accordingly, it is submitted that presently amended claims 1 and 23 patentably

distinguish over the cited prior art for at least the reasons set forth above.

Furthermore, it is noted that in the final Office Action on page 4, lines 13-21, the

Examiner responds to the previously presented patentability arguments as follows:

> Chakraborty teaches where a shot or a take in video parlance refers to a
> contiguous recording [of] one or more video frames depicting a
> continuous action in time and space. Typically, transitions between
> shots (also referred to as 'scene changes' or 'cuts') are created
> intentionally by film directors, see col. 1 line [s] 35-44. *The examiner
> notes that a scene is a plurality of shots.* Since a shot refers to a
> continuous recording of one or more video frames depicting a
> continuous action in time and space where the transitions between shots
> are called cuts *and a scene is a plurality of shots*, clearly a scene is fully
> *capable of* including a plurality of shots containing multiple transitions
> (cuts) between shots. [Emphasis added.]

Thus, the Examiner has not pointed out where **Chakraborty** or any of the other

references disclose or suggest classifying a scene that includes a plurality of shots, as claimed.

The Examiner simply "**notes** that a scene is a plurality of shots" and reasons that a "scene is fully

capable of including a plurality of shots containing multiple transitions (cuts) between shots."

However, even if the shots in **Chakraborty** are considered part of a larger scene, **Chakraborty**

does not disclose or suggest (and the Examiner has not pointed out where **Chakraborty** or any

of the other cited references disclose or suggest) classifying a plurality of continuous shots into a

scene, such as a dynamic scene, static scene, etc.

Further, the Examiner's rationale "a scene is fully capable of including a plurality of shots containing multiple transitions (cuts) between shots" does not support the rejection because, just because a scene has a plurality of shots does not teach classifying the scene including the plurality of shots into a specific type of scene.

Furthermore, regarding **Toklu**, the Examiner states that "Since Toklu discloses [that] the method partitions the video data into a set of "shot[s]" comprising visually abrupt cuts or camera break, *it is clear to the Examiner that Toklu segments or classifies continuous shots as either abrupt or as camera break*, which reads upon performing operations on segmented shots and classifying continuous shots." However, **Toklu** merely discloses that the cut detection method partitions a video into a set of shots, the shot boundaries being detected based on a camera break or an abrupt cut. **Toklu** teaches no more than the **Chakraborty** reference. That is, **Toklu** teaches segmenting a video into shots, and does not classify a plurality of continuous shots into a type of scene.

Accordingly, it is submitted that presently amended claims 1 and 23 patentably distinguish over the cited prior art for at least the reasons set forth above.

Moreover, each of claims 4, 9, 13 and14 patentably distinguish over the cited prior art forth e reason set forth above. That is, the combination of **Chakraborty** and **Toklu** merely teach uses various metrics to determine potential or possible transitions between shots, which transitions may be a cut point, which is an abrupt transition, or a fade, dissolve, wipe, etc., which is a gradual transition.

Moreover, regarding claim 14, the Examiner has not pointed out where the references teach the claimed "a commercial scene detector for detecting the commercial scene *by comparing a number of shot boundaries detected during a predetermined interval with a predetermined reference number*, and classifying the scene as the commercial scene in response to the comparing indicating that the number of shot boundaries detected during the predetermined interval is greater than the predetermined reference number". The Examiner's response to the previously presented patentability argument regarding claim 14 does not explain where the references teach the above-noted feature, and asserts that because **Chakraborty** disclose that a computed metric is compared to a threshold to detect a shot boundary, a variety of other operations *which are not disclosed by the references* would follow (see final Office Action, page 7). Therefore, because none of the references teach the features regarding *comparing a number of shot boundaries detected during a predetermined interval with a predetermined reference number* to classify a scene as a commercial scene, the factual basis supporting the rejection of this feature is improperly provided by the Examiner and not by the cited references. Therefore, the rejection of claim 14 is improper for this additional reason.

Finally, the patentability arguments regarding claim 21 set forth in the Amendment filed December 6, 2010 are hereby incorporated by reference. The Examiner's response to these arguments relies primarily on the assertion that there is almost always an edit effect between an action shot and a slow motion replay. However, the response provides no explanation as to how the references teach how the type of video effect to be inserted is determined. In particular, the Examiner relies on **Pan** to teach "*inserting means for inserting a video transition effect into a*

combined portion of the respective highlight scenes, the inserting means including a dynamic/static scene detector to detect whether a highlight scene is a dynamic scene with much motion or a static scene with little motion". The Examiner relies on **Gonsalves** to teach *"wherein the inserting means makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene."* However, neither of these references, whether taken alone or in combination, disclose or suggest that the video transition effect to be determined is made different based on whether the dynamic or static scenes are combined.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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